

What is claimed is:

1. A cleaning apparatus of a high-density plasma chemical vapor deposition chamber, comprising:
 - a chamber formed with a closed space therein;
 - an upper electrode provided in an upper portion of the chamber and applied with radio frequency energy;
 - a lower electrode provided below the upper electrode and applied with radio frequency energy;
 - a chuck provided below the upper electrode and formed thereon with the lower electrode to fix a wafer thereon; and
 - at least three cleaning gas nozzles provided at regular intervals on a sidewall of the chamber around the chuck.
2. The apparatus as claimed in claim 1, wherein at least one cleaning gas nozzle is bent toward an upper center of the chamber relative to an upper surface of the chuck..
3. The apparatus as claimed in claim 2, wherein each cleaning gas nozzle is bent toward an upper center of the chamber relative to an upper surface of the chuck.
4. The apparatus as claimed in claim 1, wherein at least one cleaning gas nozzle is bent in a spiral form toward a center portion of the chamber and in a direction from a lower portion to an upper portion relative to an upper surface of the chuck.

5. The apparatus as claimed in claim 1, wherein the cleaning gas is NF_3 .

6. A method of cleaning a high-density plasma chemical vapor deposition chamber, comprising:

supplying a cleaning gas into the chamber through cleaning gas nozzles provided at a sidewall of the chamber so that the cleaning gas fills a space between an upper electrode and a lower electrode in the chamber, increasing a density of the cleaning gas at a center portion of the chamber and projecting the cleaning gas to an upper portion of the chamber; and

controlling an amount of the cleaning gas to be supplied in response to a thickness of polymer deposited on the sidewall of the chamber.

7. The cleaning method as claimed in claim 6, wherein the cleaning gas is projected from the sidewall of the chamber with a predetermined elevation angle toward the center of the chamber and around the sidewall of the chamber.

8. A method of cleaning a high-density plasma chemical vapor deposition chamber, comprising:

supplying a cleaning gas into the chamber through at least three cleaning gas nozzles provided along a sidewall of the chamber so that the cleaning gas fills a space between an upper electrode and a lower electrode in the chamber; and

projecting the cleaning gas to an upper portion of the chamber.

9. The method of claim 8, wherein the cleaning gas is projected from the sidewall of

the chamber with a predetermined elevation angle toward the center of the chamber.

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